funds, Mr. Bell was completely successful in his object. Up to nearly the close of his long life he was in the habit of coming to town to attend the anniversary meetings of a society of which he may almost be called the second founder.

In 1866 Mr. Bell purchased The Wakes, Selborne, from the grand-nieces of Gilbert White, and the last twenty years were spent by him there in peaceful retirement, but not in idleness. Giving up systematic scientific work, as well as professional practice, he devoted the long evening of his life to observation in the field, especially of birds and plants, and to the reverent study of the life and labours of the famous historian of his adopted home. Only three years ago, at the age of eighty-five, he published an edition of the "Natural History of Selborne," which may safely be said to be by far the best of the numerous issues of that classic work.

In his Hampshire retreat, as in the heat and bustle of metropolitan life, Mr. Bell retained all the charm of manner and fine qualities both of heart and mind, which endeared him to all who had the privilege of knowing him; and up till very recently his robust health enabled him to bear the weight of years lightly as an honour rather than a burden. Under Gilbert White's roof-tree he died peacefully on Saturday, the 13th instant. By his death the scientific world seems to have lost one of its last links with a generation of good and faithful workers whose labours are too apt to be overlooked in the stir and struggle of controversies of the day.

NOTES

We continue this week, by the courtesy of General Myer, our monthly series of Meteorological Charts for the Northern Hemisphere, compiled by the U.S. Signal Office. The present map shows the mean pressure, temperature, force, and direction of wind for June, 1878. To meteorologists the lessons of the chart will be plain; the next one which we issue we hope to accompany by an article explanatory of the purposes and utility of the whole series.

After Easter the Royal Society is to meet at half-past four in the afternoon instead of half-past eight in the evening.

The keepership of the mineralogical department of the British Museum has become vacant by the resignation of Prof. Story-Maskelyne, F.R.S., who is a candidate for the representation of Cricklade in the new Parliament.

The work of casting the lenses of the great refracting telescope of the Paris Observatory has already begun at Feil's establishment. The founding of the flint disc has taken five days, and the annealing a full month. A like operation will soon take place for the Bishofsheim Observatory instrument.

The *Melbourne Argus* says:—"The Count de Castelnau, for many years French Consul at Melbourne, died yesterday (February 4) at his residence, Apsley-place, East Melbourne. The deceased gentleman was an ardent student of natural history, and had pursued his studies in the various parts of the world whither his official duties led him. He was director of the Scientific Expedition sent by Louis Philippe, the King of the French, to South America, and was afterwards French Consul in divers parts of the southern hemisphere. While at the Cape of Good Hope he wrote a "Memoire sur les Poissons de l'Afrique Australe." When he returned to Europe and began to put his voluminous notes in order, he made the disheartening discovery that while he had been temporarily disabled his servant had been for more than a month in the habit of using the sheets of paper on which he had bestowed so much time and labour to light the fires. He disposed of the remainder of his notes and drawings to Prof. Lacordaire, and about 1862 arrived in Melbourne, where he has since resided. Count Castelnau was an active member of the Zoological and Acclimatisation Society of Victoria. He contributed several valuable papers on the fishes of Australia, which have been published by the Society, and are recognised by naturalists as works of authority on the subject."

The American Philosophical Society of Philadelphia, the oldest scientific society in America, celebrated the one hundredth anniversary of its incorporation by a public dinner at the St. George Hotel, on March 15. The Society was founded May 25, 1743, and incorporated March 15, 1780.

An American correspondent writes that on March 30 and 31 the ninth annual meeting of the American Fish Cultural Association takes place. This association is by no means local in its character, but has extended fish culture all over the United States. It was through its exertions that the Government was induced to form the U.S. Fish Commission, with the secretary of the Smithsonian at its head. Among the members of the Association are found most of the leading icthyologists in the United States, with all of the Canadian officers who have Her Majesty's Provincial Fisheries under their charge.

A telephonic line has been formed between the meteorological station on the Pic du Midi and Bagneres-de-Bigorre (30 kilometres distance). General de Nansouty writes in high terms of the Edison telephone, which he is using.

The Observatory at Mannheim has been removed to Karlsruhe.

The Vesuvius railway from the observatory to the crater will be opened in April.

A correspondent of *La Nature* sends that paper a photograph of a curious phenomenon met with in the cold of December last. It shows a bottle which contained a solution of nitrate of silver (1 per cent.). The cork is forced out and imprisoned at the extremity of a long cylinder of ice, due to increase of the volume of the mass in freezing. The bottle was also cracked, and several pieces detached.

The cold room established by Tellier at the Conservatoire des Arts et Metiers for the fabrication of standard metres and kilogrammes on behalf of the several foreign governments in the international union, is not to be discontinued when the International Observatory at St. Cloud is finished. The apparatus will be sold to the French Government and used by it for the fabrication and comparison of standard kilograms and metres to be used in the several public conservatoires of France and the Colonies.

The annual meeting of the West London Scientific Association was held on Tuesday, followed by a *soirée* and a varied and interesting exhibition.

There was a shock of earthquake on Monday at Poitiers and Chatellerault.

A number of pneumatic clocks have been installed by a Viennese speculator on the Paris Boulevards for the distribution of the time, in competition with the electric system advocated by Leverrier and now in course of experimentation. Three systems, Breguet's, Garnier's, and Redier's, which have been successful in a first competition, are to be tested successively.

It may be noted in confirmation of the theories advocated by Mr. Blandford in our last issue, that the period of north winds, clear skies, and high pressure set in in France in October 1878, and has continued without any long interruption up to the present moment. The date of the beginning of that remarkable period is almost the same as the end of the high-pressure period noted in India and the great Archipelago of Asia.

M. TIRARD, the French Minister of Agriculture, has directed the Prefects to report what kinds of fruit trees, pines, vines, and cereals suffered most and least from the December frost, in order that hints may be obtained for agriculturists, &c. The damage sustained by the Paris parks may be judged from the fact that in the Bois de Boulogne 54,000 evergreens, 20,000 firs, and 30,000 deciduous trees are required to fill up gaps, while in the Champs Elysees 3,200 trees were killed and 6,000 require cutting down to the roots. The total loss to the Municipality in the parks, avenues, and nurseries is calculated at a million francs.

AS we stated last week, the council of magistrates of the city of Berlin had under consideration a few days ago a proposal, submitted by the firm of Siemens and Halske, for the construction of an electric railway across a portion of the capital. The line would start from the Belle Alliance-place, and run through Friedrich and Chaussee streets on to the Wedding-place. There will be two lines of rails, one for the up and the other for the down journey. The viaduct will be carried on iron pillars 14 feet 9 inches high, and nearly 33 feet apart. These pillars will be placed along the edge of the footpath, so as to cause the least possible interference with the ordinary traffic. The carriages will be narrow and short, containing ten sitting places and four standing places. The electro-dynamic machine which will propel the carriages will be placed under the floor of the carriage between the wheels, and a steam-engine of 60-horse power, which will be employed in the production of the electricity, will be placed at the terminus. The stoppages will be very few, and the rate of speed will be, it is expected, about twenty miles an hour. The chief object of the undertaking is to convey persons quickly across the city, and especially to facilitate access to the city line of railway.

AT a recent meeting of the Boston Society of Natural History, Mr. F. W. Putnam gave an account of his explorations of the ancient mounds and burial-places in the Cumberland Valley, Tennessee. The excavations had been carried on by himself, assisted by Mr. Edwin Curtiss for over two years, for the benefit of the Peabody Museum at Cambridge. During this time many mounds of various kinds had been thoroughly explored, and several thousand of the singular stone graves of the mound-builders of Tennessee had been carefully opened. The material obtained from the explorations is now arranged and on exhibition in the Peabody Museum. Mr. Putnam's remarks were illustrated by drawings of several hundred objects obtained from the graves and mounds, particularly to show the great variety of articles of pottery and several large and many unique forms of implements of chipped flint. He also exhibited and explained in detail a map of a walled town of this old nation. This town was situated on the Lindsley estate, in a bend of Spring Creek. The earth embankment, with its accompanying ditch, encircled an area of about twelve acres. Within this inclosure there was one large mound with a flat top, 15 feet high, 130 feet long, and 90 feet wide, which was found not to be a burial-mound. Another mound near the large one, about 50 feet in diameter and only a few feet high, contained sixty human skeletons, each in a carefully-made stone grave, the graves being arranged in two rows, forming the four sides of a square, and in three layers. From these graves many interesting articles were obtained. The most important discovery he made within the inclosure was that of finding the remains of the houses of the people who lived in this old town. Of them about seventy were traced out, and located on the map by Prof. Buchanan of Lebanon, who made the survey for Mr. Putnam. Under the floors of hard clay which was in places much burnt, Mr. Putnam found the graves of children. As only the bodies of adults had been placed in the one mound devoted to burial, and as nearly every site of a house he explored had from one to four graves of children under the clay floor, he was convinced that it was a regular custom to bury the children in that way. He also found that the children had been undoubtedly treated with affection, as in their small graves were found many of the best pieces of pottery he obtained, and also quantities of shell-beads, several large pearls, and many other objects which were probably the playthings of the little ones while living.

AT a subsequent meeting of the same Society, Mr. Putnam made a communication on the principles involved in the ornamentation of the pottery of some of the ancient nations of America, with particular reference to that from the Cumberland Valley in Tennessee, and from Nicaragua; illustrating his subject by a fine series of vessels of various shapes, selected from the Peabody Museum of American Archæology and Ethnology. After a general review of the methods of ornamentation employed by American nations of the past, he showed that, by a study of such large collections as those in the Peabody Museum, the artistic development of the ancient peoples of America was far greater than generally stated by writers; and that the art of ornamentation had, in many instances, risen above the simple patterns made by incised lines, rude stamps, and other early and crude forms. Both in colour and plastic work a realistic art had been produced which had often resulted in conventionalisms of great interest. He also stated that a study of this ancient pottery, with these principles of conventionalism borne in mind, would not only place some of these ancient American nations in a much higher artistic period than formerly supposed, but would also lead to the understanding of many of the singular ornaments on the ancient vessels, many of which, without this knowledge of the existence of realistic and conventional art, would be looked upon as crude and meaningless attempts at ornament, whereas, as he showed by several series of specimens, the simple knobs arranged symmetrically about a pot or water bottle, were instances of pure conventionalism from realistic forms, and prove that a comparatively high attainment in the decorative art had been reached. A proper and careful study of the principles involved by this interpretation of the artistic development of the ceramic art in America, he thought, would in time furnish means of making comparisons in regard to the probably connection of one ancient American nation with another, and also an understanding of many of the singular resemblances between widely separated peoples. Still, he said, the whole subject was yet in its infancy, and the connection of one ancient people with another in America can at present only be suggested from very unsatisfactory data.

THE following are among the papers to be read at the meetings of the Society of Arts after Easter, so far as the arrangements are yet complete:—April 2, "The Best Route for a Line of Railway to India," by B. Haughton, C.E. April 6, "Art in Japan," by C. Pfoundes. April 7, "Buildings for Secondary Educational Purposes," by E. C. Robins, F.S.A., F.R.I.B.A. April 8, "Recent Improvements in Benzine Colours," by F. J. Friswell, F.C.S. April 14, "The History of the Art of Bookbinding," by Henry B. Wheatley, F.S.A. April 16, "Russia's Influence over the Inhabitants of Central Asia during the last Ten Years," by Prof. Vambery. April 21, "The Present System of Obtaining Materials in use by Artist Painters, as compared with that of the Old Masters," by W. Holman Hunt. April 22, "On Some Recent Advances in the Science of Photography," by Capt. Abney, R.E., F.R.S. April 27, "Iceland and Its Resources," by C. G. W. Lock. April 28, "Recent Improvements in Gas Furnaces for Domestic and Laboratory Purposes," by Thomas Fletcher. May 5, "The last Forty Years of Agricultural Experience," by John C. Morton. May 7, "The Present Condition and Prospects of Agriculture in South India," by W. Robertson, M.R.C.A.

May 13, "The Optical Properties of Crystals, and some of their Practical Applications," by Prof. W. G. Adams, F.R.S. The course of Cantor Lectures, which will be delivered during the same period, will be the third for the present session. It will consist of six lectures by Mr. R. W. Edis, F.S.A., on "Art Decoration and Furniture," to be given on the following dates:—April 5, 12, 19, 26; May 3, 10.

In a report which he has addressed to the Department of Finance and Commerce at Calcutta, Mr. E. Colborne Baber, lately H.M.'s Consular representative at Chungking, furnishes some very interesting information respecting the western frontier of China, to one part of which, however, we can only allude. During his travels in the mountainous region west of Kiating-fu, in Szechuen, Mr. Baber discovered two kinds of tea of a very unexpected nature. In the monasteries on Mount Omi (or Ngomi) he was given an infusion of tea which is naturally sweet, tasting like coarse congou with a plentiful addition of brown sugar. It is only grown by the monks on the slopes of the mountain, and two days' further west its existence was unknown. The other variety, odd as it may appear, has a natural flavour of milk, or perhaps more exactly of butter. What is most interesting is the fact that it is wild tea, growing in its native elevated *habitat* without cultivation, and an unimpeachable instance of a wild tea-plant has, Mr. Baber affirms, never yet been adduced in China. This wild tea is found in the uninhabited wilderness west of Kiating and south of Yachow, at heights of 6,000 feet and upwards, and was described to Mr. Baber as a leafy shrub 15 feet high, with a stem some 4 inches thick. Every part of the plant, except the root, is used for making the infusion; the wood is chopped up and put into a kettle of water with the dried leaves and twigs, and being boiled yields a strongly coloured but weak tea, possessing a buttery flavour, which gives it some resemblance to the Thibetan preparation. Mr. Baber only found it in the Hwang-mu-chang plateau, a terrace perched among the stupendous gorges of the Tung river.

The letter on the "Tay Bridge Storm," which appeared in NATURE, vol. xxi. p. 443, was written by the Hon. Ralph Abercromby, and not by Sir Ralph Abercromby, Bart., as erroneously stated.

The additions to the Zoological Society's Gardens during the past week include a Grivet Monkey (*Cercopithecus griseo-viridis*) from North-East Africa, presented by Mr. W. C. Gordon; a Sykes's Monkey (*Cercopithecus albogularis*) from East Africa, presented by Mr. E. S. Savage; a Malbrouck Monkey (*Cercopithecus cynosurus*) from West Africa, presented by Mrs. Ladell; two Spanish Ichneumons (*Herpestes widdringtoni*) from Andalusia, presented by Mr. J. C. Forster; a Caffer Wild Cat (*Felis caffra*) from South Africa, presented by the Rev. G. H. R. Fisk, C.M.Z.S.; three Impeyan Pheasants (*Lophophorus impeyanus*) from the Himalayas, a Square-spotted Snake (*Oxyrrhopus doliatus*) from South America, deposited; four Concave-casqued Hornbills (*Buceros bicornis*) from India, a Brazilian Cariama (*Cariama cristata*) from Brazil, two White-backed Trumpeters (*Psophia leucoptera*) from the Amazons, a Redshank (*Totanus caladris*), British, purchased; two Common Badgers (*Meles taxus*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

SUSPECTED VARIABLE STARS.—Mr. Tebbutt, of Windsor, N.S.W., has drawn attention to the variability of the star B.A.C. 2472, which he appears to infer from its occurrence as a sixth magnitude in the occultation list of the *Nautical Almanac*, and his ineffectual attempt to observe its occultation on April 22, 1874, added to the circumstance of its present brightness not exceeding the eighth magnitude. But it seems probable that the supposed variability arises from an oversight of Taylor's in his observations either in 1834 or 1835. In vol. iii. of the Madras Observations it is certainly rated 6m., and Baily has followed Taylor in the British Association Catalogue, whence the *Nautical Almanac* estimate of magnitude was no doubt taken. Lalande, who observed the star twice, rated it 8 and 8½, D'Agelet, Piazzi, Bessel, and Argelander in the *Durchmusterung*, 8·0; so that observers, with the exception of Taylor, agree, and as he did not observe the star closely preceding on the parallel 65 Geminorum in 1834 or 1835, we may suspect that the magnitude of this star was inadvertently attributed to B.A.C. 2472, though his position undoubtedly refers to the latter star. Mr. Tebbutt also mentions that he has reason to think the neighbouring star, Lalande 14571, is variable; in this case there are not published data to guide us: it is 8½ in the "Histoire Céleste," 8 and 8·9 in Bessel, and 8·1 in the *Durchmusterung*.

THE SOUTHERN COMET.—Mr. Gill, in a letter dated—Royal Observatory, Cape of Good Hope, February 24, incloses an approximate orbit of the great southern comet, calculated by Mr. Finlay, the first assistant. The elements are as follows:—

Perihelion passage, January 27·55 G.M.T.

Longitude of perihelion	280	16
,, ascending node	123	24·5
Inclination	75	12
Logarithm of perihelion distance	7·90315	

Motion—direct.

It will be remarked that this orbit is entirely different to that we published last week, which was deduced from the only positions available for the purpose—the very rough ones forwarded by Mr. Gill on February 17. From the same approximate data an orbit was also calculated at Lord Lindsay's observatory, with results almost identical with those in NATURE, but which were received too late for insertion last week. It is to be presumed that Mr. Finlay will have availed himself of the accurate places which were obtained at the Cape on February 11, 13, and 15, but so far as we know have not yet been transmitted to Europe; hence it may be anticipated that his elements will prove to be the true ones, and we shall have, in the case of this comet, a similar one to that of the comet of 1533, for which two orbits by Douwes and Olbers, bearing no resemblance, appear in our catalogues, having been deduced from rough observations extending over a limited period. We have already had occasion to point out in this column that the comet of 1686 presents a similar difficulty if only the European observations are employed, but the correct orbit is assigned when we introduce in the computations the positions observed at Amboyna and in Siam.

Calculating from Mr. Finlay's elements, we have the following places of the comet for 8h. Greenwich M.T.

	R.A.		N.P.D.		Log. distance from	
	h.	m.	°	′	Earth.	Sun.
March 27	5	7·9	96	20	0·2347	0·2237
28	5	10·1	96	3		
29	5	12·2	95	47	0·2492	0·2334
30	5	14·3	95	31		
31	5	16·4	95	16	0·2633	0·2427
April 1	5	18·4	95	1		
2	5	20·4	94	47	0·2769	0·2516

It is right to state, that from the greatly diminished intensity of light which the comet is likely to present at this time, Mr. Finlay doubted if it would be possible to observe it in Europe, and Mr. Gill adds that in strong moonlight on February 23 he failed to discover the least trace of it, and was not sanguine with his optical means that he would see it again. Nevertheless as instruments of much greater capability can be brought to bear upon a search for the comet in these latitudes, the above places may be found of service.

We are indebted to correspondents in Australia, Tasmania, and South America for various notices of this fine comet, chiefly extracted from the public journals. The *Launceston Examiner* of February 3 states that attention had been called the previous evening to what appeared to be the tail of a very large comet, which "extended from thirty to forty degrees above the horizon, and was setting almost in a line with the sun, which prevented the nucleus and brighter part of the tail being seen earlier;" it is added, "if it were now winter instead of summer it would present a glorious spectacle about dark." At Melbourne the tail was seen on February 2 soon after sunset, but the nucleus had not been visible at the Observatory up to February 5; no doubt Mr. Ellery will give a good account of it later, and should nothing prevent the great reflector from being brought to bear